

16.6

*See also
For your info*

System 17

This outline details the necessary ground and flight test checks prior to operational use of System 17. In essence, the required flight tests consist of a series of passes over an instrumented range of signal sources and a readout of the resultant taped data at Headquarters.

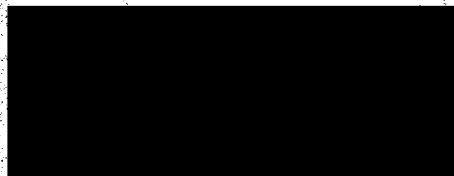
Part I of the outline presents general background material, and Part II the procedures necessary for utilization of System 17. Part III covers the present status and inventory of the equipment.

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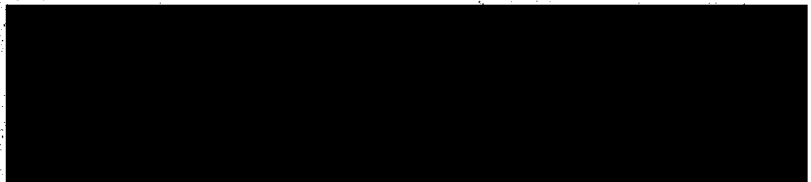


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Part I.

Background Material

1. Need for Flight Tests

- 1.1. Mating of System 17 and System 17B units is untried in an operational sense.
- 1.2. System 17B units have not been environmentally (pressure, temperature) tested.
- 1.3. 25X1A2d2 Compatability of the System 17 with other airborne equipments (OS Mk III, System 13C) should be tested and proven.
- 1.4. Project [REDACTED] results showed the need for a detailed examination of pre-flight checks and calibration procedures.
- 1.5. Although perhaps each in itself does not justify flight tests in the U.S., the sum of the arguments in paragraphs 1.1. through 1.4. would suggest the advisability of such a program

2. Ground Checks

- 2.1. System ground check will be made in support of the flight tests and not as an end in itself.
- 2.2. The ground check will be essentially a full-bore calibration of all units.
- 2.3. Estimated time for complete ground check is one-half day.
- 2.4. The time estimate does not include pre- and post flight checks which are covered under the flight test plan.
- 2.5. 25X1A2d2 The ground checkout will follow the procedures outlined in the proposals received from the contractor following the [REDACTED] deployment.

- 2.6. Tapes will be monitored and analyzed in the field. Both contractor and ASD/OEL representatives will reduce the data. There is no need to send calibration run tapes to 25X1A5a2 [REDACTED]

3. Flight Tests

- 3.1. Flight tests will be coordinated amongst the representatives of ASD/OEL, OSA (Material and OPS) and the contractor representatives.

- 3.1.1. Coordination with cognizant DOD facilities will be accomplished by ASD/OEL.

- 3.1.2. Test aims and objectives will be decided upon at a meeting of the following: ASD/OEL, AND/OEL, OSA/OPS, OSA/MAT, OSI.

3.2. Cognizant Personnel

3.2.1. Contractors

- 3.2.1.1. Two contractor personnel are required for maintenance support of the equipment in the field.

3.2.2. Agency

- 3.2.2.1. One ASD/OEL representative can oversee the initial ground and flight tests in the U.S. and [REDACTED] 25X1A2d2

- 3.2.2.2. The ASD/OEL representative is not needed in the field during the operational part of the program.

- 3.2.2.3. A representative from OSA should be present during all of the flight tests.

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Part II

System 17 Test Plan

1.0 Objectives

1.1 The purpose of this test plan is twofold:

1.1.1 To check the performance of the System 17 when configured in an operational mode.

1.1.2 To check System 17 compatability with, and possible interference from, other airborne systems such as the 13C, 12B, 9B, and OS

2.0 Instrumentation

2.1 Airborne Equipment

2.1.1 System 17

2.1.2 Aircraft defensive systems normally carried in operational mode

2.1.3 Aircraft communications equipment

2.1.4 Aircraft navigational equipment

2.2 Ground Equipment

2.2.1 System 17 Support Equipment

2.2.2 Normal operational ground support equipment

2.2.3 [REDACTED] radar complex 25X1A2d2

2.2.4 Tracking radar

2.2.5 High power signal sources: known power outputs and frequencies from VHF through X-band.

3.0 Test Procedures

3.1 Ground Checkout

3.1.1 System 17 checkout will follow normal pre-flight procedures.

3.1.2 Radiated signals will be injected via the antennas and system output monitored on the tape playback amplifiers to ensure proper system operation.

3.1.3 Receiver and video controls will be utilized to obtain equal noise background levels for all recorded channels.

3.1.4 Attenuators will be placed in series with the System 17 antenna leads. Attenuation values will be supplied at a later date.

3.2 Flight Tests

3.2.1 Altitude: Flight test runs will consist of a set of constant altitude passes at 70K feet.

3.2.2 Location

3.2.2.1 One set of runs will be made over readily available site providing radiated signals at known power levels and frequencies from VHF through X-band.

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3.2.2.2 One set of runs will be made over [REDACTED] utilizing the [REDACTED] radar complex to stimulate the 13C.

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3.2.3 Test procedures

3.2.3.1 Three passes will be made for each set of runs.

3.2.3.1.1 First pass directly over the site

3.2.3.1.2 Second pass at 30 mile offset to left of site.

3.2.3.1.3 Third pass at 30 mile offset, parallel to second pass, to right of site, with aircraft going in direction opposite to that of second pass.

- 3.2.3.2 On all passes, the aircraft will maintain a fixed heading for distances of 100 n.m. approaching and leaving the target site.
- 3.2.3.3 For those runs checking the ELINT record capabilities of System 17 (see paragraph 3.2.2.1), the following instructions will hold:
 - 3.2.3.3.1 System 17 slow recorder will be turned on immediately after takeoff.
 - 3.2.3.3.2 All ground signal sources will be calibrated and their power outputs maintained at a constant level during the runs.
 - 3.2.3.3.3 System 17 will be set for reception via the stbd antennas immediately after takeoff.
 - 3.2.3.3.4 Upon completion of second pass, pilot will switch System 17 reception from stbd to port antennas.
 - 3.2.3.3.5 Pilot will turn on/off the IFF Squawker when advised to do so from ground control.
 - 3.2.3.3.6 Pilot will make continuous run of comments for record purposes during entire flight.
 - 3.2.3.3.7 Pilot will turn on the System 17 fast recorder approaching the target site at distance of 100 n.m.
 - 3.2.3.3.8 Pilot will turn off the fast recorder leaving target site at range of 100 n.m.
 - 3.2.3.3.9 System 13C will be placed in Stand-By position immediately after takeoff and will not be turned on for these test runs.
- 3.2.3.4 For those runs checking compatability of the System 17 with other on-board equipments, (see paragraph 3.2.2.2) the following instructions hold:
 - 3.2.3.4.1 System 17 slow recorder will be turned on immediately after takeoff.

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- 3.2.3.4.2 System 13C will be placed in Stand-By immediately after takeoff. System 13C on/off commands will be given to the pilot by ground control. Systems 12B, 9B, and O/S will be turned on immediately after take off.
- 3.2.3.4.3 [REDACTED] radar will commence transmitting when aircraft approaches to within radar tracking range.
- 3.2.3.4.4 Pilot will notify ground control when System 12B strobe indicates S-band intercept.
- 3.2.3.4.5 Ground control will instruct pilot when, and how long, to activate 13C.
- 3.2.3.4.6 Pilot will turn on System 17 fast recorder when System 12B strobe indicates S-band intercept on first set of runs.
- 3.2.3.4.7 System 17 fast recorder will be turned on by 12B during second set of runs.
- 3.2.3.4.8 System 17 will be set for reception via the stbd antennas immediately after takeoff.
- 3.2.3.4.9 Upon completion of second pass, pilot will switch System 17 reception from stbd to port antennas.
- 3.2.3.4.10 Pilot will turn on/off the IFF squawker when advised to do so from ground control.
- 3.2.3.4.11 Pilot will make continuous run of comments for record purposes during entire flight.

4.0 Post Flight Analyses

- 4.1 Taped data will be cursorily checked immediately upon completion of each flight test.
- 4.1.2 Scope and visicorder presentations will be utilized for the post flight checks.
- 4.2 Tapes will be shipped to Headquarters and detailed examination of taped data will be done by HEPC personnel.

Part III.

Status and Inventory of System 17

1. Inventory

1.1. Equipment, Airborne

1.1.1. Receivers

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1.1.1.1. [REDACTED]

1.1.1.2. [REDACTED]

1.1.2. Antennas

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1.1.2.1. [REDACTED]

1.1.2.2. [REDACTED]

1.1.2.3. [REDACTED]

1.1.3. Recording Equipment

1.1.3.1. M-14A Tape Recorders: two 14 inch units are available. No spare units have been provided.

1.1.3.2. M-201-5 and M-201-1 Tape Recorders: two each of these 10-1/2 inch units have been provided as emergency gear for the M-14 recorders. The System 17 frame has been modified to accept these heavier recorders, which are presently stored at [REDACTED]

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1.2. Equipment Analysis

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1.2.1. System 17 ground analysis equipment is at [REDACTED]
[REDACTED] Recent contractor inventory indicates all gear is present.

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1.2.2. System 17B ground analysis equipment is set up at [REDACTED] to read out the System 17 take. Two problems have arisen:

1.2.2.1. The wrong galvos for the visicorder readout gear were supplied. The present galvos have a response to 600 cycles; the desired response is 6 KC. OSA Material has been contacted to order the correct units.

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1.2.2.2. The 14 inch tape deck at [REDACTED] has a 100 KHz response. This may effect the readout of the fast (60 ips) tapes whose response is one MHz.

1.3. Equipment, Spares

1.3.1. Two System 17 units are available: one for operation use, the other as a spare back up unit. Other than the two identical systems, no spares are available.

1.3.2. The identical situation exists for System 17B.

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1.3.3. Approximately 25 reels of tape are available at [REDACTED]. This supply should be adequate for the current operation.

1.3.4. Spare sets of dipoles and log periodics (2 each) were ordered in September 1967.